Claims Amendments

Please replace the previous claims with the claims listed below.

Claims 1-67 (canceled)

Claim 68 (canceled)

69. (currently amended) A method ~~as claimed in claim 68, comprising use of multiple sequential processing stages or parallel processing phases of said captured samples;~~ of digital signal processing of multi-sampled phase (DSP MSP), recovering data from a received signal, which comprises capturing multiple samples of the signal per a symbol time with ~~a sampling clock or its~~ sub-clocks of a sampling clock defining known phase displacements versus the sampling clock; ~~wherein:~~ the DSP MSP method comprising the steps of:

~~comprising use of~~ using multiple sequential processing stages ~~or~~ and parallel processing phases of said captured samples;

driving said sequential processing stages ~~are driven by~~ with the sampling clock or clocks synchronous to the sampling clock;

driving consecutive said parallel processing phases ~~are driven by~~ with clocks which are shifted in time by corresponding consecutive periods of said sampling clock and have 2 or more times lower frequencies than a frequency of the sampling clock, in order to multiply processing times assigned for said parallel phases;

passing outputs of a one parallel processing phase ~~are passed~~ to a next parallel phase, wherein output register bits of ~~the~~ an original parallel phase are re-timed by clocking them into an output register of the next parallel phase simultaneously with processing results of the next parallel phase;

using said passed outputs ~~are used by~~ in a following sequential processing stage which belongs to the next parallel processing phase;

detection of phases of rising and falling edges of the signal by using said signal samples captured at said known phase displacements;

evaluation of a length of a pulse of the signal by using said phases of signal edges;

calculation of a number of data bits received in the pulse by using said evaluation of the pulse length.

Claims 70-87 (canceled)

88. (currently amended) A method of digital signal processing of multi-sampled phase (DSP MSP), recovering data from a received signal, which comprises capturing multiple samples of the signal per a symbol time with ~~a sampling clock or its~~ sub-clocks of a sampling clock defining known phase displacements versus the sampling clock; the DSP MSP method comprising the steps of:

detection of phases of rising and falling edges of the signal by using said signal samples captured at said known phase displacements;

measurement of a length of a pulse of the signal occurring between said phases of signal edges, based on a known relation between a frequency of the sampling clock and a frequency of a received signal clock;

evaluation of a number of data bits received in the pulse, based on said measurement of the pulse length.

89. (currently amended) A method of digital signal processing of multi-sampled phase (DSP MSP) for recovering data from a received signal, the DSP MSP method comprising the steps of:

maintaining a known frequency relation between a sampling clock and a received signal clock;

detection of phases of rising and falling edges of the signal by using ~~the sampling clock or its~~ sub-clocks of the sampling clock defining known phase displacements versus the sampling clock;

measurement of a length of a pulse of the signal occurring between said phases of signal edges, based on such known frequency relation;

evaluation of a number of data bits received in the pulse, based on said measurement of the pulse length.

90. (currently amended) A method of digital signal processing of multi-sampled phase (DSP MSP) for recovering data from a received signal, the DSP MSP method comprising the steps of:

producing a sampling clock which maintains a frequency alignment with a received signal clock;

detection of phases of rising and falling edges of the signal by using ~~the sampling clock or its~~ sub-clocks of the sampling clock defining known phase displacements versus the sampling clock;

measurement of a length of a pulse of the signal occurring between said phases of signal edges, based on such frequency alignment;

evaluation of a number of data bits received in the pulse, based on said measurement of the pulse length.

91. (currently amended) A method of digital signal processing of multi-sampled phase (DSP MSP) for recovering data from a received signal, the DSP MSP method comprising the steps of:

measurement of a frequency relation between a sampling clock and a received signal clock;

detection of phases of rising and falling edges of the signal by using ~~the sampling clock or its~~ sub-clocks <u>of the sampling clock</u> defining known phase displacements versus the sampling clock;

measurement of a length of a pulse of the signal occurring between said phases of signal edges, utilizing such measured frequency relation;

evaluation of a number of data bits received in the pulse, based on said measurement of the pulse length.